

UNCLASSIFIED

AD NUMBER

AD522555

CLASSIFICATION CHANGES

TO: unclassified

FROM: secret

LIMITATION CHANGES

TO:  
Approved for public release, distribution  
unlimited

FROM:  
No Foreign

AUTHORITY

GDS 31 Dec 80; DTRA ltr, 6 May 99

THIS PAGE IS UNCLASSIFIED

**SECRET**

DNA 2821Z-1

August 1972

IMSC B303707

~~U.S.~~

## READINESS TEST PLANNING

### Infrared Radiation Requirements

#### Volume I - Summary of Measurements (U)

R. C. Gunton  
J. N. Bradbury  
B. M. McCormac

HEADQUARTERS  
Defense Nuclear Agency  
Washington, D. C. 20305

Radiation Physics Laboratory  
Lockheed Palo Alto Research Laboratory  
3251 Hanover Street  
Palo Alto, California 94304

DDC CONTROL  
NO 22149

Contract No. DASA 01-70-C-0162

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18 U.S.C., SECTIONS 793 AND 794. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

Classified by Directorate for  
Intel & Scty. DNA  
Subject to GDS of EO 11652  
Automatically Downgraded at  
Two Year Intervals  
Declassified on December 31, 1980

**SECRET**

When this report is no longer needed, Department of Defense Organizations will destroy it in accordance with appropriate procedures. Contractors will destroy the report according to the requirements of the Industrial Security Manual for safeguarding classified information.

Retention of this document by DoD Contractors is authorized in accordance with Paragraph 2, Industrial Security Letter 71L-3, dated 17 May 1971.

**SECRET**

DNA 2821Z-1

August 1972

LMSC B303707

~~1-3~~

**READINESS TEST PLANNING**

**Infrared Radiation Requirements**

**Volume I - Summary of Measurements (U)**

R. C. Gunton  
J. N. Bradbury  
B. M. McCormac

**HEADQUARTERS**  
**Defense Nuclear Agency**  
**Washington, D. C. 20305**

**Radiation Physics Laboratory**  
**Lockheed Palo Alto Research Laboratory**  
**3251 Hanover Street**  
**Palo Alto, California 94304**

**DDC CONTROL**  
**NO 22149**

**Contract No. DASA 01-70-C-0162**

This work was supported by the Defense Nuclear Agency  
under NWET subtask K43AAXYX907-03

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18 U.S.C., SECTIONS 793 AND 794. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

Classified by Directorate for  
Intel & Scty. DNA

Subject to GDS of EO 11652  
Automatically Downgraded at

Two Year Intervals  
Declassified on December 31, 1980

**SECRET**

**UNCLASSIFIED**

LMSC/B303707

ABSTRACT

(U) This is Volume I in a series of reports on Readiness Test Planning, Infrared Radiation Requirements. The purpose of this series is to produce an experimental plan for IR measurements to be made in the NN RTP series of planned high altitude nuclear tests. These measurements will provide needed information for systems design and will also enhance our knowledge of the phenomenology of IR emission sources and processes.

(U) Volume I is a Summary of Measurements, organized according to test altitude and IR wavelength.

(U) Volume II discusses the background information needed for production of an experimental plan in four chapters entitled: 1) IR Test Measurement Requirements, 2) Nuclear Induced IR Environment, 3) Nuclear Radiation Environment, and 4) Modification of Target Observables.

(U) Volume III deals with 5) Experimental Approach and 6) Experimental Plan.

**UNCLASSIFIED**

UNCLASSIFIED

LMSC B303707

TABLE OF CONTENTS

Section		Page
	Abstract	ii
	Table of Contents	iii
I.	TEST ALTITUDE ABOVE 250 km	1
	1. SWIR Radiances	1
	2. Radiances in the 10-12 $\mu$ m Window	1
	3. Radiances in the 8-30 $\mu$ m Range	2
II.	TEST ALTITUDES 50 to 150 km	3
	1. SWIR Radiances	3
	2. Radiances in the 10-12 $\mu$ m Window	4
	3. Radiances in the 8-30 $\mu$ m Range	4
III.	TEST ALTITUDES BELOW 50 km	
	1. SWIR Radiances	5
	2. Radiances in the 10-12 $\mu$ m Window	6
	3. Radiances in the 8-30 $\mu$ m Range	7

UNCLASSIFIED

SECRET

LMSC/B303707

IR MEASUREMENTS

I. TEST ALTITUDE ABOVE 250 km

(S) 1. SWIR Radiances (U)

Purpose: These measurements will provide 1) nuclear interference data required for boost track system design, and 2) information about the sources and processes leading to SWIR radiation, e.g. NO, H<sub>2</sub>O, CO<sub>2</sub>, NO<sub>2</sub>, OH, particles and electrons.

Measurement Plan: Spectrometers will be used to measure radiances in the range 2-7  $\mu\text{m}$  with 10  $\text{cm}^{-1}$  resolution. Radiometers will acquire data at 2.7, 4.3, 6.3 and 3.8  $\mu\text{m}$  with 0.5  $\mu\text{m}$  bandwidth,  $10^{-3}$  sec temporal resolution, and 0.1 km spatial resolution. Instrument sensitivities must be about  $10^{-8}$   $\text{W cm}^{-2} \text{sr}^{-1} \mu\text{m}^{-1}$ . Regions to be examined include the debris patch,  $\beta$  patch and x-ray patch. Vertical and horizontal scans will be made of the detonation region with data acquired at least once every scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000, ... secs after burst until radiance has decayed to background level. Rockets will be the principal measurement platform.

(S) 2. Radiances in the 10-12  $\mu\text{m}$  Window (U)

Purpose: These measurements will provide 1) nuclear interference data required for early warning aircraft system design, and 2) information about sources of 10-12  $\mu\text{m}$  radiation; e.g. HNO<sub>3</sub>, O<sub>3</sub>, metal oxides, CO<sub>2</sub>, particles and electrons.

SECRET

SECRET

LMSC/B303707

Measurement Plan: A spectrometer will be used to measure radiances in the 10-12  $\mu\text{m}$  atmospheric window with  $10\text{ cm}^{-1}$  resolution. Two radiometers will be used to acquire data for the 10-12  $\mu\text{m}$  band: one with  $10^{-3}$  sec temporal resolution, the other with a spatial resolution of 0.1 km. Sensitivities should be about  $10^{-11}\text{ w cm}^{-2}\text{ sr}^{-1}\mu\text{m}^{-1}$ . Regions to be examined include the debris patch,  $\beta$  patch and the x-ray patch. Vertical and horizontal scans will be made at the various regions with data acquired at least once every scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000, ... secs until radiance has decayed to background level. Rockets will be the principal measurement platform supported by aircraft.

(S) 3. Radiances in the 8-30  $\mu\text{m}$  Range (U)

Purpose: These measurements will provide 1) nuclear interference data for homing and above the horizon system requirements, and 2) information about processes and sources producing radiation in the 8-30  $\mu\text{m}$  range. Some potentially important radiators are:  $\text{HNO}_3$ ,  $\text{O}_3$ , metal oxides,  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ , particulate matter, and electrons.

Measurement Plan: Spectrometers will be used to measure radiances in the range 8-30  $\mu\text{m}$  with  $10\text{ cm}^{-1}$  resolution. Radiometers will acquire data in this range with 1-2  $\mu\text{m}$  wavelength resolution. The radiometer arrays will separately provide  $10^{-3}$  sec temporal resolution and 0.1 km spatial resolution. Sensitivities should be of the order of  $10^{-12}\text{ w cm}^{-2}\text{ sr}^{-1}\mu\text{m}^{-1}$ . Regions to be examined include the debris patch,  $\beta$  patch and the x-ray patch. Vertical and horizontal scans of the regions

SECRET



SECRET

LMSC/B303707

will be made, with data acquired at least once every scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000... secs until the intensity decays to ambient background levels. Rockets will be the principal measurement platform.

## II. TEST ALTITUDES 50 TO 150 km

### (S) 1. SWIR Radiances (U)

Purpose: These measurements will provide 1) nuclear interference data for boost track system requirements and 2) information about the phenomenology of SWIR radiation, i.e. sources and processes. Some potential sources are NO, H<sub>2</sub>O, CO<sub>2</sub>, NO<sub>2</sub>, OH, particles and electrons.

Measurement Plan: Spectrometers will be used to measure radiances in the range 2-7  $\mu\text{m}$  with 10  $\text{cm}^{-1}$  resolution. Radiometers will acquire data at 2.7, 4.3, 6.3 and 3.8  $\mu\text{m}$  with 0.5  $\mu\text{m}$  bandwidth,  $10^{-3}$  sec temporal resolution, and 0.1 km spatial resolution. Instrument sensitivities should be less than  $10^{-8} \text{ W cm}^{-2} \text{ sr}^{-1} \mu\text{m}^{-1}$ . Regions to be examined include the fireball,  $\beta$  patch, x-ray patch, UV excited region, and the heaved-gas region, as appropriate. Vertical and horizontal scans will be made of the regions with data acquired at least once every scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000,... secs after burst until radiances decay to ambient background levels. Rockets will be the principal measurement platform.

SECRET

SECRET

LMSC/B303707

(S) 2. Radiances in the 10-12  $\mu$ m Window (U)

Purpose: These measurements will provide 1) nuclear interference data for early warning aircraft systems requirements, and 2) information about the phenomenology of 10-12  $\mu$ m radiation, i.e. sources and processes. Some potentially important sources are  $\text{HNO}_3$ ,  $\text{O}_3$ , metal oxides,  $\text{CO}_2$ , particles and electrons.

Measurement Plan: A spectrometer will be used to measure radiances in the 10-12  $\mu$ m window with  $10 \text{ cm}^{-1}$  resolution. Two radiometers will be used to acquire data for the 10-12  $\mu$ m band: one with  $10^{-3}$  sec temporal resolution and the other with a spatial resolution of 0.1 km. Sensitivities should be about  $10^{-11} \text{ W cm}^{-2} \text{ sr}^{-1} \mu\text{m}^{-1}$ . Regions to be examined include the fireball,  $\beta$  patch, x-ray patch, UV excited region, and the heated-gas region, as appropriate. Vertical and horizontal scans will be made of the regions with data acquired at least once every scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000... secs after burst until radiances decay to ambient background levels. Rockets will be the principal measurement platform.

(S) 3. Radiances in the 8-30  $\mu$ m Range (U)

Purpose: These measurements will provide 1) nuclear interference data for homing and above the horizon system requirements, and 2) information about the sources and processes producing 8-30  $\mu$ m radiation. Some potential sources are  $\text{HNO}_3$ ,  $\text{O}_3$ , metal oxides,  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ , particles and electrons.

SECRET

SECRET

LMSC/B303707

Measurement Plan: Spectrometers will be used to measure radiances in the range 8-30  $\mu\text{m}$  with  $10\text{ cm}^{-1}$  resolution. Radiometers will acquire data in this range with 1-2  $\mu\text{m}$  wavelength resolution,  $10^{-3}$  seconds temporal resolution, and 0.1 km spatial resolution. Sensitivities should be of the order  $10^{-12}\text{ W cm}^{-2}\text{ sr}^{-1}\mu\text{m}^{-1}$ . Regions to be examined include the fireball,  $\beta$  patch, x-ray patch, UV excited region, and the heaved-gas region, as appropriate. Vertical and horizontal scans will be made of the regions with data acquired at least once every scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000,...secs after burst until radiances decay to ambient background levels. Rockets will be the principal measurement platform.

### III. TEST ALTITUDES BELOW 50 km

#### (S) 1. SWIR Radiances (U)

Purpose: These measurements will provide 1) nuclear interference data for boost track requirements and 2) information about the phenomenology of SWIR radiation, i.e. sources and processes. Some potential sources are  $\text{NO}$ ,  $\text{H}_2\text{O}$ ,  $\text{CO}_2$ ,  $\text{NO}_2$ ,  $\text{OH}$ , particles and electrons. Entrainment of cold air by the fireball occurs in this altitude range.

Measurement Plan: Spectrometers will be used to measure radiances in the range 2-7  $\mu\text{m}$  with  $10\text{ cm}^{-1}$  resolution. Radiometers will acquire data at 2.7, 4.3, 6.3 and 3.8  $\mu\text{m}$  with 0.5  $\mu\text{m}$  bandwidth,  $10^{-3}$  sec temporal resolution, and 0.1 km spatial resolution. Sensitivities should be near  $10^{-8}\text{ W cm}^{-2}\text{ sr}^{-1}\mu\text{m}^{-1}$ . For this altitude range, the fireball is the principal region to be examined. Vertical

SECRET

SECRET

LMSC/B303707

and horizontal scans will be made with rocket-borne instrumentation with data acquired at least once per scale height. Measurements from synchronous satellites will be made if feasible. Measurement times will include 1, 3, 10, 30, 100, 300, 1000... secs after burst until radiances has decayed to ambient background levels.

(S) 2. Radiances in the 10-12  $\mu$ m Window (U)

Purpose: These measurements will provide 1) nuclear interference data for early warning aircraft systems, and 2) information about the sources and processes producing 10-12  $\mu$ m radiation. Some potentially important radiators are  $\text{HNO}_3$ ,  $\text{O}_3$ , metal oxides,  $\text{CO}_2$ , particles and electrons.

Measurement Plan: A spectrometer will be used to measure radiances in the 10-12  $\mu$ m window with  $10 \text{ cm}^{-1}$  resolution. Two radiometers will be used to acquire data for the 10-12  $\mu$ m band: one with  $10^{-3}$  sec temporal resolution and the other with spatial resolution of 0.1 km. Sensitivities should be less than  $10^{-11} \text{ W cm}^{-2} \text{ sr}^{-1} \mu\text{m}^{-1}$ . The fireball is the principal region to be examined. Vertical and horizontal scans will be made with rocket-borne instrumentation acquiring data at least once per scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000...secs until radiances decay to the ambient background level.

SECRET

SECRET

LMSC/B303707

(S) 3. Radiances in the 8-30  $\mu$ m Range (U)

Purpose: These measurements will provide 1) nuclear interference data for homing and above the horizon system requirements, and 2) information about the sources and processes producing 8-30  $\mu$ m radiation. Some potential sources are  $\text{HNO}_3$ ,  $\text{O}_3$ , metal oxides,  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ , particles and electrons.

Measurement Plan: Spectrometers will be used to measure radiances in the range 8-30  $\mu$ m with  $10 \text{ cm}^{-1}$  resolution. Radiometers will acquire data in this range with 1-2  $\mu$ m resolution,  $10^{-3}$  sec temporal resolution, and 0.1 km spatial resolution. Sensitivities of  $10^{-12} \text{ w cm}^{-2} \text{ sr}^{-1} \mu\text{m}^{-1}$  are necessary. The fireball is the principal region to be examined. Vertical and horizontal scans will be made with rocket-borne instrumentation acquiring data at least once per scale height. Measurement times will include 1, 3, 10, 30, 100, 300, 1000...secs until radiances decay to the ambient background level.

SECRET

## DISTRIBUTION

### Department of Defense

Director  
Advanced Research Projects Agency  
Architect Building  
1400 Wilson Blvd.  
Arlington, VA 22209  
Attn STO, Cdr. Walton T. Boyer

Defense Documentation Center  
Cameron Station  
Alexandria, VA 22314  
Attn TC - 2

Director  
Defense Intelligence Agency  
Washington, D.C. 20301  
Attn DT-1, Current Intel. Group

Director  
Defense Nuclear Agency  
Washington, D.C. 20305  
Attn APTL, Tech Library - 2  
Attn STRA  
Attn DDST, Mr. Warren W. Berning  
Attn APSI (Archives)  
Attn RAAE  
Attn DDST, Dr. John A. Northrop

Director of Defense Research  
& Engineering  
Washington, D.C. 20301  
Attn Mr. Daniel J. Brockway

Commander  
Field Command  
Defense Nuclear Agency  
Kirtland AFB, New Mexico 87115  
Attn FCTD-P  
Attn Tech Library, FCWS-SC

### Department of the Army

Commanding Officer  
Aberdeen Research & Development Center  
Aberdeen Proving Ground, Maryland 21005  
Attn AMXRD-XSE for  
Dr. Franklin E. Niles

Director  
Advanced Ballistic Missile Defense Agency  
Commonwealth Bldg.  
1320 Wilson Blvd.  
Arlington, VA 22209  
Attn CRDABM-RP, Dr. Richard S. Ruffine  
Attn Dr. J. A. Jamieson

Commanding Officer  
Safeguard System Evaluation Agency  
White Sands Missile Range, NM 88002  
Attn EAB, R. E. Dekinder

Director  
U.S. Army Advanced Ballistic Missile  
Defense Agency  
Huntsville Office  
P.O. Box 1500  
Huntsville, AL 35807  
Attn CRDABH-O, Mr. W. Davies

Commanding Officer  
U.S. Army Foreign Science  
& Technology Center  
220 7th Street NE  
Charlottesville, VA 22901  
Attn Dr. P. A. Crowley

### Department of the Navy

Commander  
Naval Electronics Laboratory Center  
San Diego, CA 92152  
Attn Code 2200.1  
Mr. Verne E. Hildebrand

Director  
Naval Research Laboratory  
Washington, D.C. 20390  
Attn Code 7700, Dr. Ramy M. Shanny  
Attn Code 7750, Dr. W. A. Ali  
Attn Dr. Doug McNutt

Department of the Air Force

AF Cambridge Research Laboratories, AFSC  
L. G. Hanscom Field  
Bedford, MA 01730

Attn Opr, Mr. Hervey P. Gauvin  
Attn LIJ, Mr. James C. Ulwick  
Attn OPR, Dr. Alva T. Stair  
Attn OP, Dr. John S. Garing  
Attn SUOL, AFRL Research Library

Headquarters  
AF Technical Applications Center  
6801 Telegraph Road  
Alexandria, VA 22313

AF Weapons Laboratory, AFSC  
Kirtland AFB, NM 87117  
Attn CA, Maj. Wm. A. Whitaker  
Attn DOGL, Technical Library  
Attn SYT, Capt. S. Brecht

Air Force Avionics Laboratory, AFSC  
Wright-Patterson AFB, Ohio 45433  
Attn LTC John Rudzki (RSO)

Commander  
Rome Air Development Center, AFSC  
Griffiss AFB, NY 13440  
Attn Mr. V. Coyne

Space & Missile Systems Organization  
P.O. Box 92960  
Worldway Postal Center  
Los Angeles, CA 90009  
Attn Maj. Gerald J. Ringes (SYJ)

Atomic Energy Commission

Los Alamos Scientific Laboratory  
P.O. Box 1663  
Los Alamos, NM 87544  
Attn Doc Control for  
Dr. Don Kerr

Department of Defense Contractors

Aerospace Corp.  
P.O. Box 5866  
San Bernardino, CA 92408  
Attn Weapons Effects Dept.  
Dr. Sidney W. Kash

Aerospace Corporation

P.O. Box 95085  
Los Angeles, CA 90045  
Attn Off of Tech. Surviv. Dir.  
(Dr. Harris Mayer)  
Attn Dr. R. Grove

General Electric Company  
TEMPO-Center for Advanced Studies  
816 State Street (P.O. Drawer QQ)  
Santa Barbara, CA 93102  
Attn DASLAC  
Attn Dr. J. McKee  
Attn Dr. Don Chandler  
Attn Dr. Tim Stevens

General Research Corporation  
P.O. Box 3587  
Santa Barbara, CA 93105  
Attn Tech. Info. Office for  
Dr. John Ise, Jr.

General Research Corporation  
1501 Wilson Blvd.  
Arlington, VA 22209  
Attn Dr. R. M. Chmielecki

HSS, Incorporated  
75 Wiggins Avenue  
Bedford, Mass 01730  
Attn Dr. Don Hansen

Institute for Defense Analyses  
400 Army-Navy Drive  
Arlington, VA 22202  
Attn Dr. H. Wolfhard  
Attn Ernest Bauer

KMS Technology Center  
3009 Daimler Street  
Santa Ana, CA 92705  
Attn T. Teichmann

Lockheed Missiles & Space Company  
3251 Hanover Street  
Palo Alto, CA 94304  
Attn Dr. Billy M. McCormac  
Attn Dr. Roland E. Meyerott

McDonnell Douglas Corporation  
5301 Bolsa Avenue  
Huntington Beach, CA 92647  
Attn Mr. J. Moule

Mission Research Corporation  
1 Presidio Avenue  
Santa Barbara, CA 93101  
Attn Dan Holland  
Attn Doug Archer

Photometrics, Inc.  
442 Marrett Road  
Lexington, Mass 02173  
Attn Dr. Irving L. Kofsky

R & D Associates  
P.O. Box 3580  
Santa Monica, CA 90403  
Attn Dr. Robert E. LeLevier  
Attn Dr. Forrest R. Gilmore

Riverside Research Institute  
80 West End Avenue  
New York, NY 10023  
Attn G. Glaser

Science Applications, Inc.  
P.O. Box 2351  
La Jolla, CA 92037  
Attn Dr. Daniel A. Hamlin, Scientist  
Attn Mr. Robert W. Lowen, Vice Pres.

Stanford Research Institute  
333 Ravenswood Avenue  
Menlo Park, CA 94025  
Attn Dr. James R. Peterson  
Attn Ray L. Leadabrand  
Attn Dr. Walter G. Chesnut  
Attn Dr. Felix T. Smith  
Attn Dr. Robert Rodden  
Attn Dr. L. L. Cobb

Visidyne, Inc.  
169 Merrimac Street  
North Woburn, Mass 01801  
Attn Dr. J. W. Carpenter



UNCLASSIFIED

Security Classification

**SECRET**

LMSC B303707

**DOCUMENT CONTROL DATA - R & D**

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Lockheed Palo Alto Research Laboratory 3251 Hanover Street Palo Alto, California 94304		2a. REPORT SECURITY CLASSIFICATION <b>SECRET</b>	
		2b. GROUP	
3. REPORT TITLE READINESS TEST PLANNING Infrared Radiation Requirements Volume I - Summary of Measurements (U)			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) R. C. Gunton, J. N. Bradbury, B. M. McCormac			
5. AUTHOR(S) (First name, middle initial, last name) R. C. Gunton J. N. Bradbury B. M. McCormac			
6. REPORT DATE January 21, 1972		7a. TOTAL NO. OF PAGES 15	7b. NO. OF REFS
8a. CONTRACT OR GRANT NO. DASA 01-70-C-0162		9a. ORIGINATOR'S REPORT NUMBER(S) LMSC B303707	
b. PROJECT NO. NWET K43AAXYX907-03			
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) DNA 2821Z-1	
d.			
10. DISTRIBUTION STATEMENT			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Director Defense Nuclear Agency Washington, D.C. 20305	
13. ABSTRACT (U) This is Volume I in a series of reports on Readiness Test Planning, Infrared Radiation Requirements. The purpose of this series is to produce an experimental plan for IR measurements to be made in the NNRTTP series of planned high altitude nuclear tests. These measurements will provide needed information for systems design and will also enhance our knowledge of the phenomenology of IR emission sources and processes.  (U) Volume I is a Summary of Measurements, organized according to test altitude and IR wavelength.			

**SECRET**

(This page is unclassified)

**SECRET**

## KEY

**SECRET**

[illegible]



# Defense Threat Reduction Agency

45045 Aviation Drive  
Dulles, VA 20166-7517

CPWC/TRC

May 6, 1999

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER  
ATTN: OCQ/MR WILLIAM BUSH

SUBJECT: DOCUMENT REVIEW

The Defense Threat Reduction Agency's Security Office has reviewed and declassified or assigned a new distribution statement:

- AFSWP-1069, AD-341090, STATEMENT A ✓
- ✓DASA-1151, AD-227900, STATEMENT A ✓
- DASA-1355-1, ~~AD-336443~~, STATEMENT A **OK**
- DASA-1298, AD-285252, STATEMENT A ✓
- DASA-1290, AD-444208, STATEMENT A ✓
- DASA-1271, AD-276892, STATEMENT A ✓
- DASA-1279, AD-281597, STATEMENT A ✓
- DASA-1237, AD-272653, STATEMENT A ✓
- DASA-1246, AD-279670, STATEMENT A ✓
- DASA-1245, AD-419911, STATEMENT A ✓
- DASA-1242, AD-279671, STATEMENT A ✓
- DASA-1256, AD-280809, STATEMENT A ✓
- DASA-1221, AD-243886, STATEMENT A ✓
- DASA-1390, ~~AD-340311~~, STATEMENT A ✓
- DASA-1283, AD-717097, STATEMENT A **OK**
- DASA-1285-5, AD-443589, STATEMENT A ✓
- DASA-1714, AD-473132, STATEMENT A ✓
- DASA-2214, AD-854912, STATEMENT A ✓
- DASA-2627, AD-514934, STATEMENT A ✓
- DASA-2651, AD-514615, STATEMENT A ✓
- ~~DASA-2536, AD-876697, STATEMENT A~~
- DASA-2722T-V3, AD-518506, STATEMENT A ✓
- DNA-3042F, AD-525631, STATEMENT A ✓
- DNA-2821Z-1, AD-522555, STATEMENT A ✓

~~AD~~ waiting for reply

~~FAD~~

If you have any questions, please call me at 703-325-1034.

*Ardith Jarrett*

ARDITH JARRETT  
Chief, Technical Resource Center